Reactor Uncertainties

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What if we don't get any reactor information from the company?

There is ~monthly information provided by IAEA, but there might be a time lag.

How do large reactor uncertainties affect the sensitivity?

Sensitivity calculation:

Correlated reactor power uncertainty of 2%

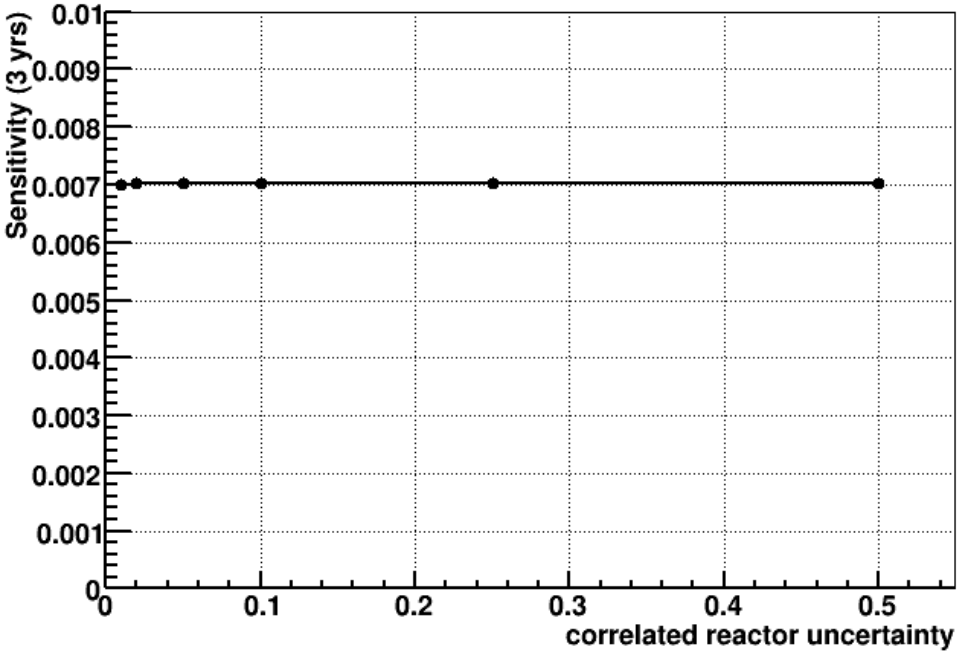
Uncorrelated reactor power uncertainty per core of 2%

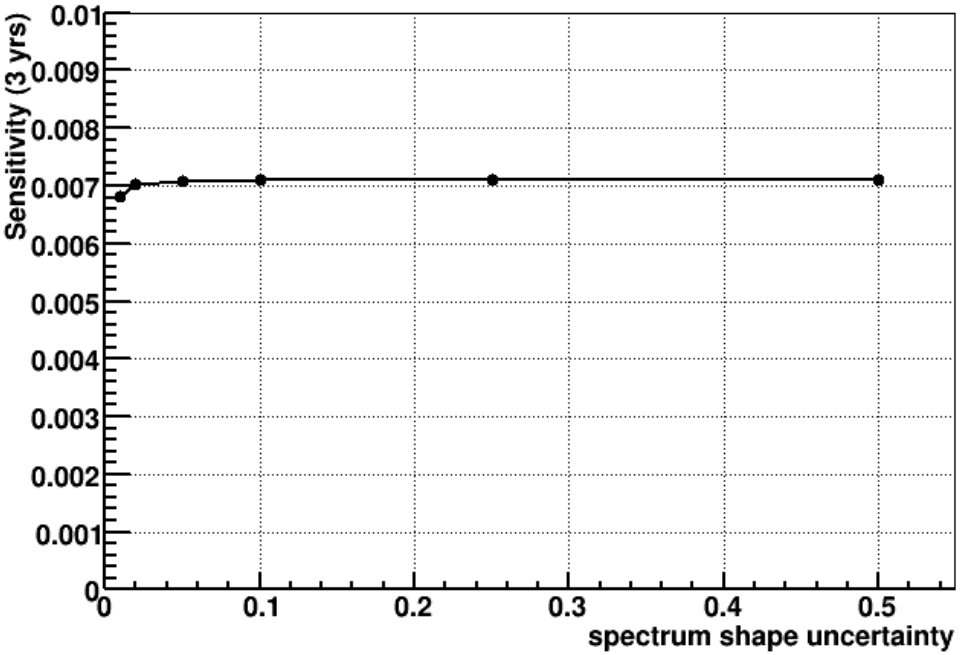
spectrum shape uncertainty of 2% (uncorrelated between bins but correlated between detectors)

Location uncertainty, spent fuel uncertainty, fuel composition uncertainty are ignored

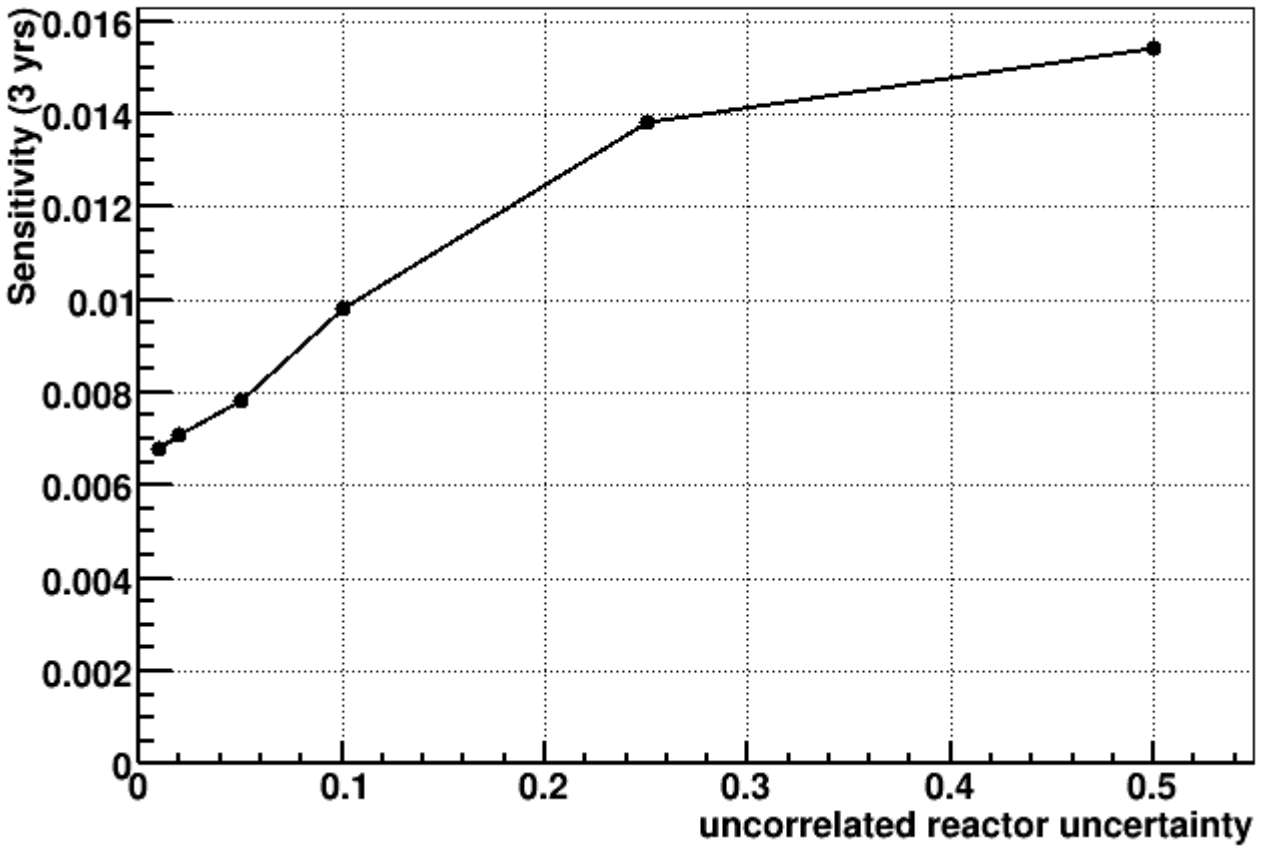
I'm using 0.38% detector uncertainty

Correlated uncertainties don't affect the sensitivity.



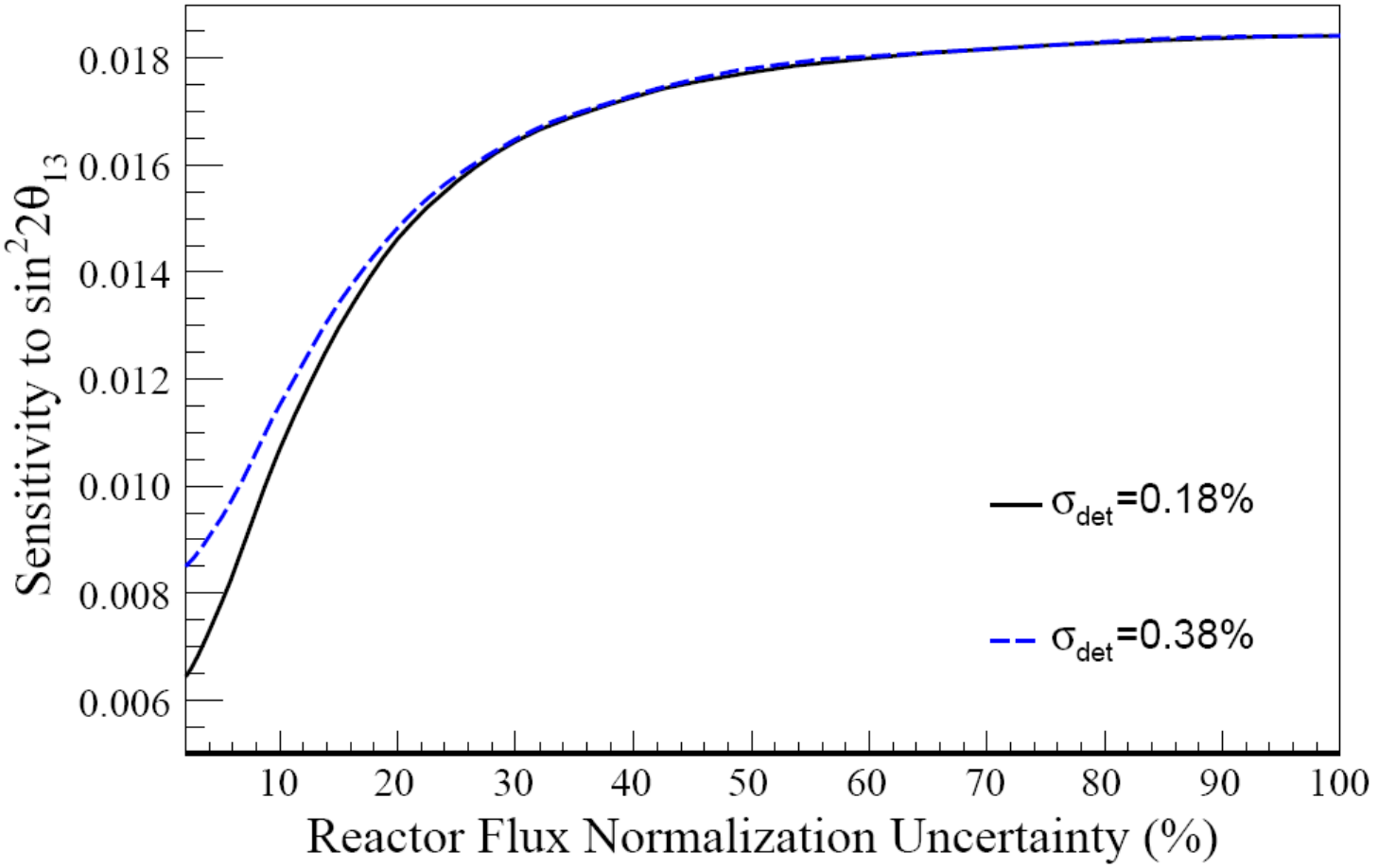


The uncorrelated uncertainties in reactor power per core do affect the sensitivity, but even with 50% uncertainty, we're at ~0.015 in 3 years.



The UW guys did this study too... (Doc-3930)

Even if the uncorrelated uncertainty in the reactor power per core is 100%, the sensitivity is 0.018.



They also consider fuel composition uncertainty.

Even with 100% uncertainty in the fuel composition, the sensitivity is ~0.017.